

REMARKS

Favorable reconsideration and allowance of this application are requested.

By way of the amendment instructions above, the pending claims herein have been amended so as to clarify the same and address the Examiner's rejections advanced under 35 USC §112, second paragraph.

In addition, claim 1 has been revised so as to emphasize that the polyamide, polyester, copolyesters or a mixture of mixtures of polyamide and/or polyester having a lower molecular weight comprises amino or hydroxyl end groups. Support for this amendment may be found in the originally filed specification at page 3, lines 4-5. ("Usually a person skilled in the art will adjust the amount of blocked diisocyanate to be used to the number of *amino or hydroxyl end groups* available....")

Therefore claims 1-4 remain pending herein for which favorable reconsideration on the merits is requested.

The only issue remaining to be resolved in this application is the Examiner's rejection of prior claims 104 under 35 USC §102(b) as anticipated by USP 4,672,094 to Nelb.

Applicants note that the present invention is both novel and unobvious in view of Nelb '094. In this regard, it is noted that the present invention which employs a polymer having amino or hydroxyl end groups results in a much faster process as compared to a process wherein the end-groups are carboxyl groups, as in Nelb '094. Furthermore, upon reaction of blocked isocyanates with carboxyl groups, carbon dioxide is produced, whereas carbon dioxide formation is absent in the process of the present invention using a polymer with amino or hydroxyl end groups whereby the amount of blocked diisocyanate is adjusted to the number of these groups.

The combination of these effects allows the process of the present invention to be carried out in an economical way using standard high throughput apparatus, such as an extruder. Thanks such a short reaction time, which is of the same order as the residence time in a *normal* extrusion -- e.g. in a commercial polymer production plant -- a stable, increased melt viscosity can be realized in practice. Moreover the products are strictly linear with no evidence of branching being found.

The advantages noted immediately above are elaborated further on page 4, lines 5-20, and page 6, lines 8-12, of the present application to which the Examiner's attention is directed.

Although Nelb '094 describes a process in an extruder, it does **not** describe a process with a polymer having amino or hydroxyl end groups and the advantageous effects thereof in terms of faster reaction speed and absence of gassing by carbon dioxide. More particular, it is said in Nelb '094 (col. 1, lines 43-56, referring to USP 4,409,167) that extruding a bubble-free polyester extrudate, during the evolution of carbon dioxide, is achieved through the use of particular screw-extruder conditions which includes, *inter alia*, the need for operating in a vacuum and premixing the polyester and diisocyanate prior to fluxing in the extruder.

Nelb '094 further state that "Most preferably, the process is carried out in a vented twin-screw extruder." (col. 3, lines 43-56) Moreover at col. 3, line 65 through col. 4, line 5, Nelb '094 states:

"When the process is being carried out by the preferred means of melt-extrusion the residence time can be controlled by such factors as the number, internal geometry, and temperature of the various zones in the melt extruder, the rate of propulsion of the mixture and the rate at which it is possible to vent the carbon dioxide."

With regard to the process of the molecular weight increase Nelb '094 notes:

"The progress of the molecular weight increase, and thus, indirectly, the time for fluxing and homogenizing depends on the reaction variables discussed above and even the means employed for carrying out the process. The molecular weight of the substrate can be compared with the value determined for the processed polymer at any convenient stage. Generally speaking, the fluxing and homogenizing is carried out until the desired molecular weight increase has been observed. The desired increase may coincide with the maximum increase prior to the occurrence of gellation."

Clearly therefore, there is still a risk of gellation in the process of Nelb '094, which risk has to be controlled by the residence time. In the examples of Nelb '094 residence times of 20 minutes are mentioned which are clearly longer than in the process according to the invention as evidenced by the Examples of the subject application.

Therefore it can be summarized that the process according to the present invention not only differs in that the blocked diisocyanate reacts with amino or hydroxyl end groups, but this difference also has the effects of short reaction times, stable polymers without branching -- let alone a risk of gellation -- and the absence of venting problems.

Therefore, applicants submit that the present invention is both novel and unobvious in view of the disclosure of Nelb '094. Withdrawal of all rejections based thereon is therefore in order.

Every effort has been made to advance prosecution of this application to allowance. Therefore, in view of the amendments and remarks above, applicant

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suggests that all claims are in condition for allowance and Official Notice of the same is solicited.

Should any small matters remain outstanding, the Examiner is encouraged to telephone the Applicants' undersigned attorney so that the same may be resolved without the need for an additional written action and reply.

An early and favorable reply on the merits is awaited.

Respectfully submitted,

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